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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,434	08/14/2001	William S. Murray	4250.2.20	8680

21552 7590 06-10-2003

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EXAMINER

SUNG, CHRISTINE

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/930,434	MURRAY ET AL.	
	Examiner	Art Unit	
	Christine Sung	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 14 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-7, 9-22, 24-37 and 39-45 is/are rejected.
- 7) ☐ Claim(s) 8, 23, 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 14 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17 2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-7 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark (US Patent 4,362,935).

Regarding claims 1, 2 and 15, Clark discloses a portable device for detecting and identifying radiation (see abstract) comprising:

a sensor (elements 86 and 90) for detecting radiation:

a memory (element 202) coupled to the processor to store instructions and data accessible to the processor;

a multi-channel analyzer (element 2) coupled to the sensor and the processor to produce signals corresponding to the radiation;

Although Clark does not specifically name an analysis means or fuzzy logic component for showing the radioisotopes present and their corresponding data in a ranked list he does disclose that an analysis of the signals received from the sensor to the MCA are processed and that these signals indicate the energy of the corresponding detected radiation. Therefore it is inherent that there is an analysis means or fuzzy logic to identify the radiation received by the sensor. Further, Clark does not disclose that the radioisotopes be placed in a ranked order, but rather placing the identified isotopes in a ranked list would be a matter of design choice because placing them in this specific order does not resolve any problems nor does it affect the overall function of the device.

Further, Clark does not specify an interface to convey a signal containing the radioisotopes from the analysis component to a display. But because Clark does disclose a display (element 12), and he discloses that the data received is displayed, it is inherent that an interface is necessary to convey the detected signal to the visual display.

Further, Clark discloses that the combination of the sensor, processor, memory, MCA, analysis component, and interface are portable (see figure 1, and column 1, lines 9-11). Although he does not specifically state that the instrument is sized to held in a person's hand, he does disclose that the combination is portable.

Regarding claims 3 and 4, although Clark does not disclose the specifics of the housing, he does disclose a housing (see Figure 1), to house all the necessary components. It would have been obvious to one having ordinary skill in the art the time the invention was made to separate the device into two housing units with the necessary recesses, since it has been held that

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constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179 (BdPatApp&Int 1969).

Regarding claim 5, as disclosed above, Clark discloses that the device is portable, but does not specifically disclose that it is hand held. It would have been obvious to make the device handheld if necessary for the functionality of the device.

Regarding claim 6, since Clark does not disclose a specific display type, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a PDA (personal data assistant) as the display component because it is a well known and used display component for displaying various types of information.

Regarding claim 7, Clark discloses an analysis component comprising:

a peak search component (column 4, 27-39) configured to produce peak search data by analyzing the pulse height data;

a peak analysis component or smoothing function (Column 6, lines 13-38) configured to produce a peak analysis weighting value by analyzing the peak search data;

an energy level component (see abstract) configured to produce an energy-level value by comparing the energy level or peak level to those from a known library materials (column 5, lines 3-15);

a matching component (column 5, lines 3-15) configured to produce a matching value and a set of possible materials by analyzing the energy level weighting value and the peak analysis value.

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Clark does not disclose a ranking component, but it would be obvious to use one if the data format required the returned data to be in a listed ranked form. The display in Clark's reference displays the data corresponding to the material.

Regarding claim 9, CZT is a well-known material used for high-resolution detection devices. Although Clark does not explicitly state the use of CZT he does disclose the use of a solid-state detector, therefore it would only be a matter of design choice to use CZT as the detector because this detector is well known to be used for applications necessitating high resolution.

Regarding claim 10, Clark discloses the claimed invention except for disclosing a specific temperature range of the sensor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a detector with an operational temperature range between -10 to 50 degree Celsius, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F 2d 454, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 11, Clark discloses the claimed invention except for disclosing a specific resolution of the sensor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a sensor with a specific resolution, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 12 and 13, it is well known in the art to use a serial or infrared port as an interface. Therefore, since Clark does not specifically disclose a method of communicating the detected signals and the display (see abovementioned paragraphs) it would have been

obvious to one having ordinary skill in the art at the time the invention was made to use either a serial or infrared port as the interface in order to transfer information from one component to another.

Regarding claim 14, Clark discloses a smoothing function or a correction component to remove errors in the data (column 6, lines 13-20).

4. Claims 16-22, 24-37 and 39-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark (US Patent 4,362,935) in view of Tawil (US Patent 5,572,027).

Regarding claims 16, 17, 20, and 31, Clark discloses a portable device for detecting and identifying radiation (see abstract) comprising:

- a sensor (elements 86 and 90) for detecting radiation;

- a memory (element 202) coupled to the processor to store instructions and data accessible to the processor;

- a multi-channel analyzer (element 2) coupled to the sensor and the processor to produce signals corresponding to the radiation.

Although Clark does not specifically name an analysis means or fuzzy logic component for showing the radioisotopes present and their corresponding data in a ranked list he does disclose that an analysis of the signals received from the sensor to the MCA are processed and that these signals indicate the energy of the corresponding detected radiation. Therefore it is inherent that there is an analysis means or fuzzy logic to identify the radiation received by the sensor. Further, Clark does not disclose that the radioisotopes be placed in a ranked order, but rather placing the identified isotopes in a ranked list would be a matter of design choice because

placing them in this specific order does not resolve any problems nor does it affect the overall function of the device.

Further, Clark does not specify an interface to convey a signal containing the radioisotopes from the analysis component to a display. But because Clark does disclose a display (element 12), and he discloses that the data received is displayed, it is inherent that an interface is necessary to convey the detected signal to the display.

Further, Clark discloses that the combination of the sensor, processor, memory, MCA, analysis component, and interface are portable (see figure 1, and column 1, lines 9-11). Although he does not specifically state that the instrument is sized to held in a person's hand, he does disclose that the combination is portable.

Clark does not disclose a neutron detector configured to produce and indicator when neutrons are detected and does not specifically disclose an interface coupled to the neutron sensor and the analysis component. Tawil et al. discloses a neutron sensor (Figure 1, element 90 and Column 5 line 32-column 6, line 9) configured to produce and indicator when neutrons are detected. Further Tawil discloses that the information from this detector could be placed on the display screen, which indicates an inherent use of an interface between the detected signals and the display. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the invention disclosed by Clark with the neutron sensor disclosed by Tawil in order to be able to interrelate and verify that the data received by the radiation sensor corresponds to actual radiation rather than noise or erroneous signals.

Regarding claims 18-19 and 32-33, although Clark does not disclose the specifics of the housing, he does disclose a housing (see Figure 1), to house all the necessary components. It

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would have been obvious to one having ordinary skill in the art the time the invention was made to separate the device into two housing units with the necessary recesses, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179 (BdPatApp&Int 1969).

Regarding claims 20 and 34, as disclosed above, Clark discloses that the device is portable, but does not specifically disclose that it is hand held. It would have been obvious to make the device handheld if necessary for the functionality of the device.

Regarding claims 21 and 35, since Clark does not disclose a specific display type, it would have been obvious to one having ordinary skill at the time the invention was made to use a PDA (personal data assistant) as the display component because it is a well known and used display component for displaying various types of information.

Regarding claims 22 and 37, Clark discloses an analysis component comprising:

a peak search component (column 4, 27-39) configured to produce peak search data by analyzing the pulse height data;

a peak analysis component or smoothing function (Column 6, lines 13-38) configured to produce a peak analysis weighting value by analyzing the peak search data;

an energy level component (see abstract) configured to produce an energy-level value by comparing the energy level or peak level to those from a known library materials (column 5, lines 3-15):

a matching component (column 5, lines 3-15) configured to produce a matching value and a set of possible materials by analyzing the energy level weighting value and the peak analysis value.

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Clark does not disclose a ranking component, but it would be obvious to use one if the data format required the returned data to be in a listed ranked form. The display in Clark's reference displays the data corresponding to the material.

Regarding claims 24 and 39, CZT is a well-known material used for high-resolution detection devices. Although Clark does not explicitly state the use of CZT he does disclose the use of a solid-state detector, therefore it would only be a matter of design choice to use CZT as the detector because this detector is well known for applications necessitating high resolution.

Regarding claims 25 and 40, Clark discloses the claimed invention except for disclosing a specific temperature range of the sensor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a detector with an operational temperature range between -10 to 50 degree Celsius, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F 2d 454. 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 26 and 41, Clark discloses the claimed invention except for disclosing a specific resolution of the sensor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a sensor with a specific resolution, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. 205 USPQ 215 (CCPA 1980).

Regarding claims 27-28, and 42-43, it is well known in the art to use a serial or infrared port as an interface. Therefore, since Clark does not specifically disclose a method of communicating the detected signals and the display (see abovementioned paragraphs) it would have been obvious to one having ordinary skill in the art at the time the invention was made to

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use either a serial or infrared port as the interface in order to transfer information from one component to another.

Regarding claims 29 and 44, the use of a helium 3- proportional counter is a matter of design choice because Tawil discloses that a neutron strip detector is used, but a helium 3- proportional counter is equivalent in its function to detect neutrons. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the helium 3- proportional counter with the invention disclosed by Clark in view of Tawil.

Regarding claims 30 and 45, Clark discloses a smoothing function or a correction component to remove errors in the data (column 6, lines 13-20).

Regarding claim 36, it is well known in the art that PDAs include an infrared port that is capable of transmitting information from one device to another via the infrared interface. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the PDA to transmit a message to instruction the sensor to begin detection, as the command to begin detection is merely and on switch.

Allowable Subject Matter

5. Claims 8, 23 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 8, 23 and 37, none of the prior art of record discloses the specific combination of use of a peak significance component, a peak symmetry component and a peak

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parity component. Although many prior art references disclose using weighting factors none use all three together to analyze the peaks of the signals from the detectors.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. US Patent 4,550,381- This reference discloses a hand held spectrometer gun that analyzes the detected radiation pulses.
- b. US Patent 5,757,227- This reference discloses a CZT detector and further includes many of the components disclosed in this invention.
- c. US Patent 6,272,373- This reference discloses a radiation detection device with a hand held probe for scanning surfaces to locate sources of radiation.
- d. US Patent 5,347,129- This reference discloses image radiation pulse shaping.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 703-305-0382. The examiner can normally be reached on Monday- Friday 7-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-0956 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


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CS

June 2, 2003


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